

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
US Department of Commerce
United States Patent and Trademark
Office, PCT
2011 South Clark Place Room
CP2/5C24
Arlington, VA 22202
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 03 April 2001 (03.04.01)	
International application No. PCT/GB00/02804	Applicant's or agent's file reference 23896
International filing date (day/month/year) 20 July 2000 (20.07.00)	Priority date (day/month/year) 20 July 1999 (20.07.99)
Applicant LOCK, Gary, Michael et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
20 February 2001 (20.02.01)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Olivia TEFY Telephone No.: (41-22) 338.83.38
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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 12 NOV 2001

WIPO PCT

Applicant's or agent's file reference 23896	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB00/02804	International filing date (day/month/year) 20/07/2000	Priority date (day/month/year) 20/07/1999
International Patent Classification (IPC) or national classification and IPC B03C5/02		
Applicant UNIVERSITY OF WALES, BANGOR et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 20/02/2001	Date of completion of this report 08.11.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Van Woensel, G Telephone No. +49 89 2399 2089 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/02804

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-20 as originally filed

Claims, No.:

1-26 as originally filed

Drawings, sheets:

1/9-9/9 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB00/02804

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):
(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	2-22,24-26
	No:	Claims	1,23

Inventive step (IS)	Yes:	Claims	
	No:	Claims	2-22,24-26

Industrial applicability (IA)	Yes:	Claims	1-26
	No:	Claims	

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/02804

Ad V

1. Reference is made to the following document:

D1: WO 97 27933 A

2. The present application does not meet the requirements of Article 33(2) PCT, because the subject-matter of claims 1 and 23 is not new in the sense of Article 33(2) PCT.
- 2.1 Document D1 discloses (see passages indicated in the search report) a method for determining the properties of a particle, including its response to exposure to a chemical or physical agent, and for separating particles of more than one type, comprising the steps of applying to a suspension of particles a first signal at a first frequency and at a plurality of different phases whereby the particles experience a travelling wave dielectrophoretic force of which there is a real part which is negative and of which there is also an imaginary part, and simultaneously applying a second signal at a second frequency whereby either the real part or the imaginary part of the travelling wave dielectrophoretic force on the particles at the first frequency is altered in magnitude.
- 2.2 D1 also discloses an apparatus for the application of travelling wave dielectrophoresis comprising an electrode array on a substrate, first frequency signal operating means, frequency signal generating means, means for electrically summing the two signals from such means and applying the summed signal to the electrode array.

Therefore, claims 1 and 23 lack novelty (Article 33(2) PCT).

3. The dependent claims are only allowable when related to a patentable independent claim.
In the present case, the dependent claims merely concern preferred embodiments of the invention which do not contain any features which meet the requirements of the PCT in respect of inventive step.

Ad VII

1. Claim 26 contains a reference to the description and to fig. 9. According to Rule 6.2(a) PCT, claims should not contain such references except where absolutely

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/02804

necessary, which is not the case here.

2. The independent claims are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art (document D1) being placed in the preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).

Ad VIII

1. Although claims 1, 16 and 22 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought and in respect of the terminology used for the features of that subject-matter. The aforementioned claims therefore lack conciseness. Moreover, lack of clarity of the claims as a whole arises, since the plurality of independent claims makes it difficult, if not impossible, to determine the matter for which protection is sought, and places an undue burden on others seeking to establish the extent of the protection. Hence, claims 1, 16 and 23 do not meet the requirements of Article 6 PCT.

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 23896	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 00/02804	International filing date (day/month/year) 20/07/2000	(Earliest) Priority Date (day/month/year) 20/07/1999
Applicant UNIVERSITY OF WALES, BANGOR		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.



the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:



contained in the international application in written form.



filed together with the international application in computer readable form.



furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.



the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.



as suggested by the applicant.



because the applicant failed to suggest a figure.



because this figure better characterizes the invention.



None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 00/02804

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B03C5/02 G01N15/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B03C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97 27933 A (HUANG YING ;UNIV TEXAS (US); WANG XIAO BO (US); BECKER FREDERICK F) 7 August 1997 (1997-08-07) page 10, line 8 -page 13, line 10 page 22, line 19 -page 23, line 2 page 23, line 25 -page 4, line 19; claims 1,16,36-38,42-44,50-54,56-58,62,65-68 ---	1,2,4-6, 10,11, 16,17,23
A	X.B.WANG ET AL: "Dielectrophoretic Manipulation of Cells with Spiral Electrodes" BIOPHYSICAL JOURNAL , vol. 72, April 1997 (1997-04), pages 1887-1899, XP000911932 cited in the application the whole document --- -/--	1,10,17, 23,25

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

22 September 2000

Date of mailing of the international search report

02/10/2000

Name and mailing address of the ISA
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Authorized officer

Decanniere, L

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/02804

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	MASUDA S ET AL: "MOVEMENT OF BLOOD CELLS IN LIQUID BY NONUNIFORM TRAVELING FIELD" IEEE TRANSACTIONS ON INDUSTRY APPLICATIONS,US,IEEE INC. NEW YORK, vol. 24, no. 2, 1 March 1988 (1988-03-01), pages 217-222, XP002025002 ISSN: 0093-9994 page 220, column 2, paragraph 2 -page 221, column 2 -----	1
A	WO 91 11262 A (P & B SCIENCES LTD) 8 August 1991 (1991-08-08) cited in the application claim 1 -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 00/02804

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9727933 A	07-08-1997	US 5993630 A	30-11-1999
		US 5888370 A	30-03-1999
		AU 1856097 A	22-08-1997
		CA 2245514 A	07-08-1997
		EP 0885055 A	23-12-1998
		US 5993632 A	30-11-1999
WO 9111262 A	08-08-1991	AT 146383 T	15-01-1997
		AU 657086 B	02-03-1995
		AU 7151191 A	21-08-1991
		CA 2075042 A	31-07-1991
		DE 69123726 D	30-01-1997
		DE 69123726 T	10-04-1997
		DK 513064 T	06-01-1997
		EP 0513064 A	19-11-1992
		ES 2096644 T	16-03-1997
		JP 2952038 B	20-09-1999
		KR 156871 B	15-12-1998
		US 5795457 A	18-08-1998